



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,640	05/30/2006	Jean-Pierre Dath	F-857 (31223.00074)	1992
25264 7590 06/24/2008 FINA TECHNOLOGY INC PO BOX 674412 HOUSTON, TX 77267-4412				
EXAMINER				
BULLOCK, IN SUK C				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
06/24/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,640

Applicant(s)

DATH ET AL.

Examiner

In Suk Bullock

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/808)
Paper No(s)/Mail Date 2/11/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite "a hydrocarbon feedstock containing at least one C₁ to C₆ aliphatic hetero compound" but the examples in the specification show a feedstock containing only methanol and water. Therefore, it is not clear that there is a hydrocarbon component contained in the feedstock in addition to the methanol and steam. Furthermore, it is not clear what are the metes and bounds of the hydrocarbon contained in the feedstock, i.e., olefins, paraffins, etc.

For the purpose of the examination, the examiner will assume the feedstock comprising olefins and an aliphatic hetero compound.

Claims 1, 2, 12, and 15 recite either "MEL-type" or "MFI-type" which renders the claims indefinite because it is not clear what encompasses "type".

Claim Objections

Claim 13 is objected to because of the following informalities: "150-100" should be corrected to "150-800". Appropriate correction is required.

Claim Rejections - 35 USC § 103

Art Unit: 1797

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 and 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0062291 to Dath et al. (hereinafter "Dath") in view of

US 2003/0181777 to Powers et al. (hereinafter "Powers") and US Patent 6,222,087 to Johnson et al. (hereinafter "Johnson").

Dath discloses a process for cracking an olefin-containing hydrocarbon feedstock to light olefins comprising passing a diluted hydrocarbon feedstock through a reactor containing a crystalline silicate catalyst (MFI, MEL), wherein said catalyst is pretreated by subjecting the catalyst to steaming to de-aluminate said catalyst (abstract; page 3 [0034]; page 4 [0038] and [0045]; page 5 [0051]; and page 6 [0057]. The MFI catalyst has a Si/Al ratio of 180 to 1000 (page 5 [0049]) and MEL has a Si/Al ratio of at least 180 (page 5 [0053]). The steaming to de-aluminate the catalyst includes an extraction step to removed an amorphous alumina resulting from steam from the pores of the catalyst framework (page 5 [0051-0052] and page 6 [0057-0060]). The cracking process conditions include an inlet temperature of the feedstock from 500-600° C, LHSV of 10-30 hr⁻¹, and olefin partial pressure of 0.1 to 2 bars (page 7 [0070]).

Dath fails to disclose an aliphatic hetero compound as one of the components of the feedstock and Dath, also, fails to disclose steam.

Powers discloses catalytically cracking heavy olefins with a co-feed stream containing at least one oxygenate compound in the presence of a zeolite catalyst such as MFI (page 1 [0010]; page 2 [0015] and [0018]).

Johnson discloses a catalytic process for producing light olefins rich in propylene comprising contacting C₄ to C₇ olefins and/or paraffins with a ZSM-5 catalyst having a Si/Al ratio greater than 300 (abstract). Diluent such as steam or

Art Unit: 1797

an inert gas can be added to the feed to lower hydrocarbon partial pressure (col. 5, lines 22-25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Dath by including an oxygenate feed to the olefin feedstock as suggested by Powers because Powers has disclosed that oxygenate feed effectively reduces the amount of undesirable hydrocarbons in the light olefin product (page 1[0010]).

It would have been obvious to one skilled in the art at the time of the invention to have modified the process of Dath by employing steam as a diluent as disclosed by Johnson because Johnson has disclosed that both steam and an inert gas are equally effective as a diluent.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an

Art Unit: 1797

invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 and 11-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-42 of copending Application No. 10/569,240 in view of US 2003/0062291 to Dath et al. (hereinafter "Dath").

Both the instant application and copending application are directed to catalytically cracking a hydrocarbon feedstock comprising at least one aliphatic hetero compound in the presence of a crystalline silicate (MFI, MEL) having certain Si/Al ratio and having been steam treated.

The copending application differs from the instant application in that the copending application does not include steam and the particulars of steaming to de-aluminate the catalyst.

However, the copending application is open to other components being contained in the feedstock including diluents such as steam.

Dath discloses a process for cracking an olefin-containing hydrocarbon feedstock to light olefins comprising passing a diluted hydrocarbon feedstock through a reactor containing a crystalline silicate catalyst (MFI, MEL), wherein said catalyst is pretreated by subjecting the catalyst to steaming to de-aluminate said catalyst (abstract; page 3 [0034]; page 4 [0038] and [0045]; page 5 [0051]; and page 6 [0057]. The MFI catalyst has a Si/Al ratio of 180 to 1000 (page 5

Art Unit: 1797

[0049]) and MEL has a Si/Al ratio of at least 180 (page 5 [0053]). The steaming to de-aluminate the catalyst includes an extraction step to removed an amorphous alumina resulting from steam from the pores of the catalyst framework (page 5 [0051-0052] and page 6 [0057-0060]). The cracking process conditions include an inlet temperature of the feedstock from 500-600° C, LHSV of 10-30 hr⁻¹, and olefin partial pressure of 0.1 to 2 bars (page 7 [0070]).

Since the copending application discloses steaming the catalyst, it would have been expected that the steaming would have encompassed an extraction step to remove amorphous alumina from the pores of the catalyst framework as taught by Dath. Therefore, it would have been obvious to one skilled in the art at the time of the invention to have modified the process of instant application by including the extraction step since steaming would have resulted in formation of amorphous alumina which would have clogged the pores of the catalyst framework.

This is a provisional obviousness-type double patenting rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/In Suk Bullock/
Examiner, Art Unit 1797